

Michael Stephen Saxon

EDUCATION	Arizona State University M.S., Computer Engineering, 3.94/4.0 Thesis topic —Representation learning for data-scarce speech and language applications <i>Advisors: Visar Berisha, Ph.D. & Sethuraman Panchanathan, Ph.D.</i> Tempe, AZ Aug 2018 - Present
	Arizona State University B.S.E., Electrical Engineering, 3.60/4.0 Minor, Mathematics Tempe, AZ Aug 2014 - Aug 2018
RESEARCH INTERESTS	Natural language understanding; speech processing, synthesis, and recognition; representation learning; semi-supervised learning; assistive technologies; semantic data mining; AI governance
PUBLICATIONS	<p>M. Saxon, J. Liss, V. Berisha, “A new model for objective estimation of hypernasality from dysarthric speech,” Workshop on Signal Analytics for Motor Speech (SAMS), Motor Speech Conference 2020, Santa Barbara, CA, February 2020. (<i>Accepted</i>)</p> <p>M. Moore, M. Saxon, H. Venkateswara, V. Berisha, S. Panchanathan, “Say what? A dataset for exploring the error patterns that two ASR engines make,” Interspeech 2019, Graz, AT, 2019, pp. 2528-2532.</p> <p>M. Saxon, J. Liss, V. Berisha, “Objective Measures of Plosive Nasalization in Hypernasal Speech,” 2019 IEEE International Conference on Acoustics, Speech, and Signal Processing, Brighton, UK, 2019, pp. 6520-6524.</p> <p>M. Saxon, S. Bhandari, L. Ruskin, G. Honda, “Word Pair Convolutional Model for Happy Moment Classification,” 2nd Workshop on Affective Content Analysis, AAAI 2019, Honolulu, HI, 2019, pp. 111-119.</p> <p>B. Gupta, M. Saxon, T. McDaniel, S. Panchanathan, “Chat-Box: Proposing a Mood Analyzer for Individuals with Social Interaction Disabilities,” International Conference on Human-Computer Interaction, Las Vegas, NV, 2018, pp. 394-401.</p> <p>T. Houghton, M. Saxon, Z. Song, H. Nyugen, H. Jiang and H. Yu, “2D Grating Pitch Mapping of a through Silicon Via (TSV) and Solder Ball Interconnect Region Using Laser Diffraction” 2016 IEEE 66th Electronic Components and Technology Conference (ECTC), Las Vegas, NV, 2016, pp. 2222-2227.</p>
PREPRINTS	<p>M. Saxon, A. Tripathi, Y. Jiao, J. Liss, V. Berisha, “Robust Estimation of Hypernasality in Dysarthria,” (<i>Under Review, IEEE Trans. on Audio, Speech, and Language Processing</i>) arXiv:1911.11360</p>
EMPLOYMENT SUMMARY	<p>Applied Science Intern, (Alexa Hybrid Science) Pittsburgh, PA May 2019 - Aug 2019 Oversaw a research project integrating neural end-to-end spoken language understanding for intent classification for Alexa. Experimented with developing novel semi-supervised label projection methods to generate sequential labels from full-sequence class labels. Developed architectures for “semantic endpointing,” stopping the forward pass once enough information has been heard.</p> <p>Research Engineer Intern Scottsdale, AZ Dec 2018 - Apr 2019 Integrated cloud-based ASR and developed in-house ASR models for integration in a clinical</p>

speech assessment product. Explored the design of deployable ASR systems robust to quality reduction under dysarthria.

Graduate Research Assistant

Tempe, AZ

Joint funding from PIs Berisha and Panchanathan (See Publications)

Arizona State University

Aug 2018 - Present

REU Participant

Tempe, AZ

NSF Center for Efficient Vehicles and Sustainable Transportation Systems: Created data acquisition code for synchronous collection of LiDAR and camera image data in C++ with a corresponding video reconstruction code for part of my Senior Design project. Assisting in the development of neural network architectures for processing LiDAR data, evaluation methodologies, and principled pre-processing for LiDAR input to neural networks.

NSF EV-STS @ Arizona State University

Oct 2017 - May 2018

Embedded Software Engineering Intern

Scottsdale, AZ

Software-level testing for an FQT release of the HOOK3 Combat Survival Radio; Preparing reports on problems detected during testing and closing PRs; Working on an Agile development team

General Dynamics Mission Systems

May 2017 - Jul 2017

Undergraduate Researcher

Tempe, AZ

Developing software for networked embedded systems; Writing pathfinding algorithms for autonomous drones in Python; Utilizing machine learning to build data analysis models; AI/ML Working Group Member

The Luminosity Lab @ Arizona State University

Aug 2016 - May 2018

Tutor

Tempe, AZ

Working in the Engineering Tutoring Center; Explaining concepts for freshman and sophomore level math, science, and electrical engineering classes to students who need help; Answering questions and giving homework help

Engineering Tutoring Center @ Arizona State University

Sep 2015 - Sep 2016

**RESEARCH
EXCHANGES**

Hiroshima University

Pose estimation models for Affective Computing with Dr. Toru Tamaki's group, funding provided by Center for Cognitive Ubiquitous Computing.

May 2018 - Jul 2018

National University of Singapore

Dialog systems with Dr. Shuzhi Sam Ge's Social Robotics Lab, funding provided by Experiential Learning Grant.

May 2016 - Jul 2016

**SKILLS,
COURSEWORK**

Software Proficiencies—Python (Pytorch, Numpy, SciPy, Tensorflow, AllenNLP), BASH, C/C++, OpenCV, Kaldi, MATLAB, Linux, Verilog

Conceptual—Computational linguistics, DSP, embedded programming, sensor fusion, FPGA development, deep learning, multimedia processing

Selected Coursework—Fundamentals of Statistical Learning; Information Theory; Random Signal Theory; Digital Image/Video Processing; Speech Processing, Recognition, and Compression; Real Time DSP; Syntax; Semantics; Numerical Computing; Foundations of Algorithms